

### **AMENDMENTS TO THE CLAIMS:**

This listing of claims will replace all prior versions and listings of claims in the application:

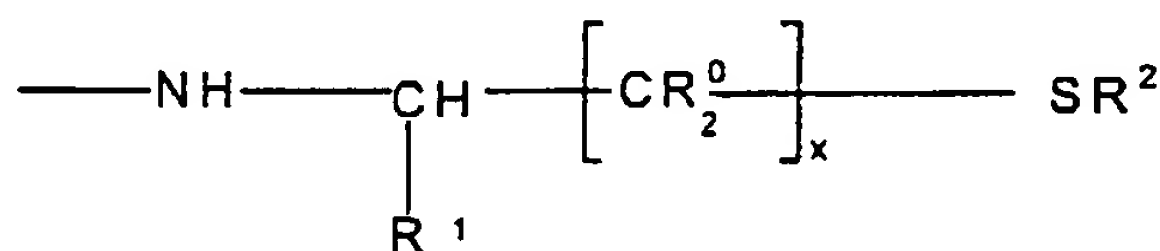
1-34 (canceled)

35. (new) A modified collagenic peptide comprising grafted free or substituted thiol functions borne by mercaptoamino residues, wherein:

- the mercaptoamino residues are identical to or different than each other and are exclusively grafted onto the aspartic acids and glutamic acids of the collagenic chain via amide bonds, and
- said collagenic peptide is soluble in aqueous media and/or in polar solvents.

36. (new) The collagenic peptide according to claim 35, wherein at least a fraction of the mercaptoamino residues, exclusively grafted onto the carboxylic acids of the aspartic acids and glutamic acids, correspond to formula (I):

### **FORMULA (I)**



in which

- $x = 1$  or  $2$ ;
- $\text{R}^0 = \text{H}$  or  $\text{CH}_3$ ;
- $\text{R}^1$  represents  $\text{H}$  or  $\text{COOR}^3$  with  $\text{R}^3$  corresponding to an aliphatic, aromatic or alicyclic radical; and

- $R^2$  is an aliphatic and/or alicyclic and/or aromatic radical.

37. (new) The collagenic peptide according to claim 36, wherein  $R^3$  is a hydrocarbon-based radical selected from the group consisting of alkyl, alkenyl, aryl, aralkyl, alkylaryl and alkenylaryl.

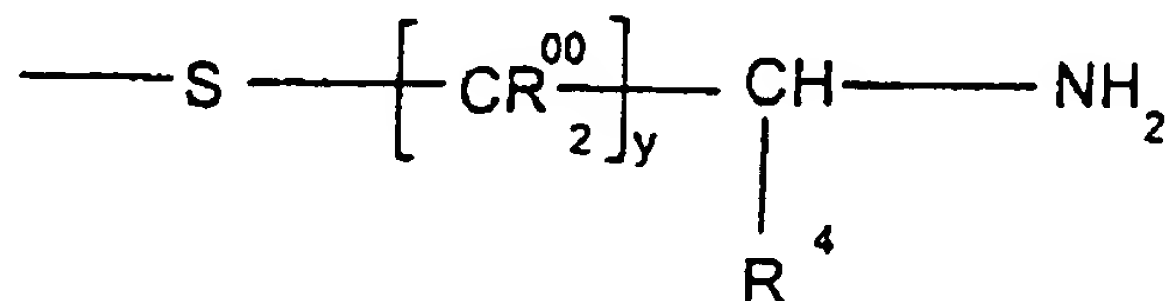
38. (new) The collagenic peptide according to claim 36, wherein  $R^3$  is a hydrocarbon-based radical selected from the group consisting of methyl and ethyl.

39. (new) The collagenic peptide according to claim 36, wherein  $R^2$  is an alkyl or an acyl group.

40. (new) The collagenic peptide according to claim 36, wherein  $R^2$  is sulfurated and/or aminated.

41. (new) The collagenic peptide according to claim 36, wherein  $R^2$  corresponds to formula (II) below:

**FORMULA (II)**



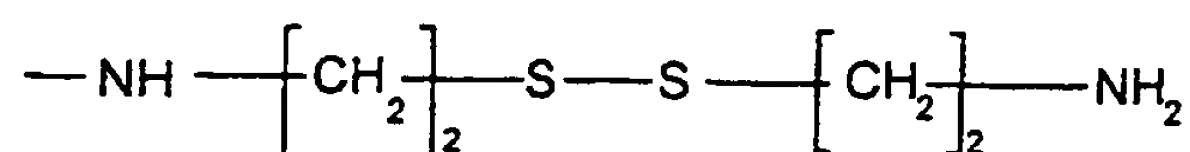
in which

- $y = 1$  or  $2$ ;

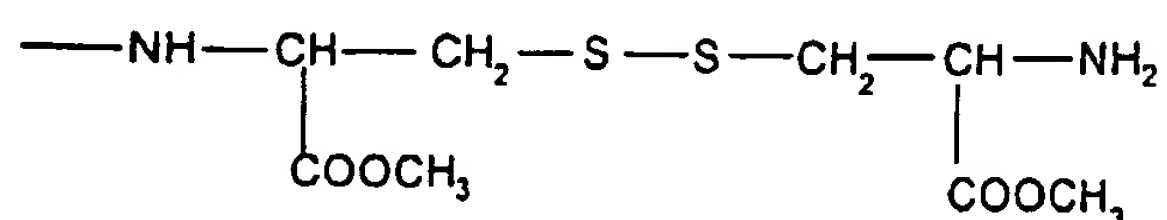
- $R^{00} = \text{H or CH}_3$ ; and
- $R^4$  represents H or  $\text{COOR}^3$  with  $R^3$  corresponding to an aliphatic, aromatic or alicyclic radical.

42. (new) The collagenic peptide according to claim 36, wherein the grafted mercaptoamino residues are chosen from the group consisting of :

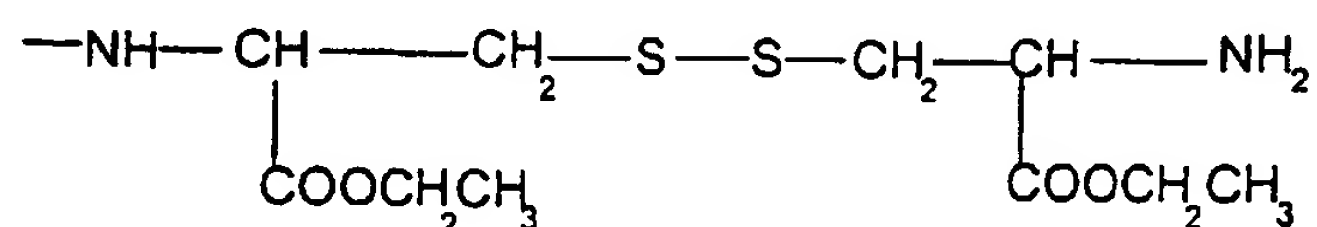
FORMULA (I.1)



FORMULA (I.2)

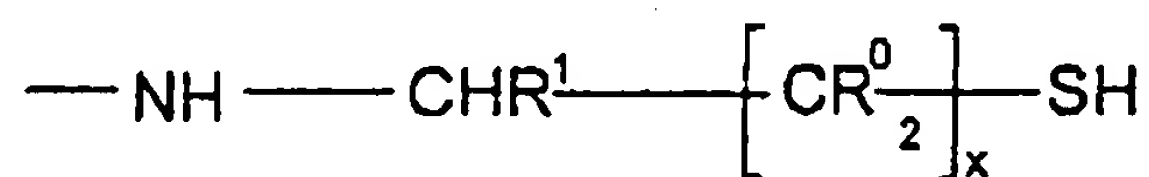


FORMULA (I.3)



43. (new) The collagenic peptide according to claim 36, comprising grafted mercaptoamino residues, exclusively onto the carboxylic acids of the aspartic acids and glutamic acids, correspond to formula (I'):

**FORMULA (I')**



in which

- $x = 1 \text{ or } 2$ ;

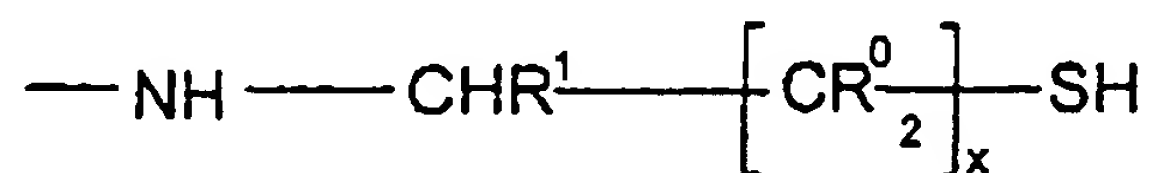
- $R^0 = H$  or  $CH_3$ ;
- $R^1$  represents  $H$  or  $COOR^3$  with  $R^3$  corresponding to an aliphatic, aromatic or alicyclic radical;  
and being crosslinkable.

44. (new) The collagenic peptide according to claim 43, wherein  $R^3$  corresponds to an aliphatic, aromatic or alicyclic radical, hydrogen or a cation forming a salt with  $COO^-$ .

45. (new) The collagenic peptide according to claim 44, wherein the cation is selected from the group consisting of  $Na^+$ ,  $K^+$  and  $Li^+$ .

46. (new) A crosslinked collagenic peptide comprising collagenic chains linked together by disulfide bridges in which the constituent sulfur atoms belong to mercaptoamino residues that are exclusively grafted onto the aspartic acids and glutamic acids of the collagenic chains via amide bonds, and obtained from a crosslinkable collagenic peptide comprising grafted mercaptoamino residues, exclusively onto the carboxylic acids of the aspartic acids and glutamic acids, said collagenic peptide corresponding to formula (I'):

**FORMULA (I')**



in which

- $x = 1$  or  $2$ ;
- $R^0 = H$  or  $CH_3$ ; and

- $R^1$  represents H or  $\text{COOR}^3$  with  $R^3$  corresponding to an aliphatic, aromatic or alicyclic radical.

47. (new) The crosslinked collagenic peptide according to claim 46, wherein in FORMULA (I')  $R^3$  corresponds to an aliphatic, aromatic or alicyclic radical, hydrogen, or a cation forming a salt with  $\text{COO}^-$ .

48. (new) The crosslinked collagenic peptide according to claim 47, wherein the cation is selected from the group consisting of  $\text{Na}^+$ ,  $\text{K}^+$  and  $\text{Li}^+$ .

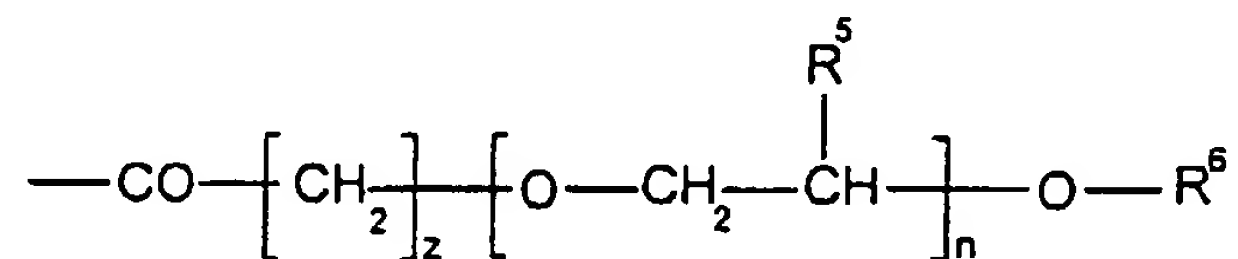
49. (new) The collagenic peptide according to claim 35, comprising grafts G different from the mercaptoamino residues and attached to at least a fraction of the free amine moieties of the collagenic chain, via amide bonds, G being an acyl group comprising a hydrocarbon-based species.

50. (new) The collagenic peptide according to claim 49, wherein the hydrocarbon-based species comprises hetero atoms.

50. (new) The collagenic peptide according to claim 49, wherein the hydrocarbon-based species is an alkyl and/or alkenyl and/or alicyclic and/or aromatic group.

51. (new) The collagenic peptide according to claim 49, wherein the hydrocarbon-based species is a group comprising an optionally unsaturated alkyl chain, containing from 1 to 22 carbon(s) or a group corresponding to the formula (III) below:

**FORMULA (III)**



in which

- R<sup>5</sup> is H or CH<sub>3</sub>;
- R<sup>6</sup> is H or a linear or branched alkyl radical;
- z is 0, 1 or 2, and n is greater than 0 and is chosen such that the molecular weight of the polymer chain is between 100 and 15,000.

52. (new) A process for obtaining a collagenic peptide soluble in aqueous media and/or in polar solvents and modified by grafting substituted thiol functions borne by mercaptoamino residues, comprising reacting exclusively the carboxylic functions of the aspartic acids and glutamic acids of a collagenic peptide with at least one precursor of a mercaptoamino residue in which the thiol function and the possible carboxylic function are blocked, said reaction being done in solution and in the presence of at least one grafting agent.

53. (new) A process for preparing a crosslinkable collagenic peptide, modified by grafting free thiol functions borne by mercaptoamino residues, said process comprising:

- (a) in reacting exclusively the carboxylic functions of the aspartic acids and glutamic acids of a collagenic peptide with at least one precursor of a mercaptoamino residue whose thiol function and possible carboxylic function are blocked, said reaction being done in solution and in the presence of at least one grafting agent,
- (b) and in deprotecting the mercapto functions of the mercaptoamino residues grafted onto the modified collagenic peptides obtained in step (a).

54. (new) A process for preparing a crosslinked collagenic peptide from a collagenic peptide modified by grafting free thiol functions borne by mercaptoamino residues, said process comprising:

- (a') in reacting exclusively the carboxylic functions of the aspartic acids and glutamic acids of a collagenic peptide with at least one precursor of a mercaptoamino residue whose thiol function and possible carboxylic function are blocked, said reaction being done in solution and in the presence of at least one grafting agent;
- (b') in deprotecting the mercapto functions of the mercaptoamino residues grafted onto the modified collagenic peptides obtained in step (a'),
- (c') and in oxidizing the thiol functions of the crosslinkable modified collagenic peptide obtained in step (b').

55. (new) The process according to claim 53, comprising an additional step of functionalization with grafts G that are different from the grafts attached to the carboxylic functions of the aspartic acids and glutamic acids, this additional step of functionalization consisting essentially in carrying out an acylation of at least some of

the free amine functions of the collagenic chain, so as to attach thereto grafts G comprising a hydrocarbon-based species.

56. (new) The process according to claim 54, comprising an additional step of functionalization with grafts G that are different from the grafts attached to the carboxylic functions of the aspartic acids and glutamic acids, this additional step of functionalization consisting essentially in carrying out an acylation of at least a fraction of the free amine functions of the collagenic chain, so as to attach thereto grafts G comprising a hydrocarbon-based species.

57. (new) A constituent of implants, prostheses, dressings, artificial tissues, a bioencapsulation system, a biocompatibilizing coating, suture threads, adhesives or surgical cements, or a cell culture support, comprising the collagenic peptide according to claim 35.

58. (new) A constituent of implants, prostheses, dressings, artificial tissues, a bioencapsulation system, a biocompatibilizing coating, suture threads, adhesives or surgical cements, or a cell culture support, comprising the crosslinked collagenic peptide according to claim 46.